RTCA, Inc.
1828 L Street, NW, Suite 805
Washington, DC 20036-5133 USA

Minimum Operational Performance Standards (MOPS) for Lithium Batteries

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Prepared by: SC-168

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RTCA, Inc.

Telephone: 202-833-9339
Facsimile: 202-833-9434
Internet: www.rtca.org

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FOREWORD

This document was prepared by RTCA Special Committee 168 (SC-168). It was approved by the RTCA Technical Management Committee on June 23, 1995.

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1.0 INTRODUCTION

Lithium batteries of a number of different chemistries, sizes, and construction details are widely used today. Among their desirable characteristics are high energy density per unit weight and per unit volume, high cell voltage, relatively-constant voltage during discharge, excellent low-temperature performance and long shelf life. Lithium batteries have the potential to provide power for aircraft equipment including emergency and standby systems. Because of their high energy content, they can present hazards if improperly designed, tested, used, or stored.

This document contains minimum operational performance standards for primary lithium cells and batteries to be used as power sources for equipment installed in aircraft. These standards should be useful to designers, manufacturers, and users of both lithium cells and batteries and of equipment installed in aircraft which is intended to be powered by such cells and batteries.

Compliance with these standards is recommended as a means of assuring that the battery will perform its intended function(s) safely under conditions normally encountered in routine aeronautical operations. Any regulatory application of this document is the sole responsibility of the cognizant government agencies.

These standards cover the chemical composition, quantity of potentially hazardous substances, cell size, cell construction, interconnection of cells into batteries, fusing, venting, current limiting, operational and storage environments, packaging, handling, tests, disposal, and any other factors which affect the use of lithium cells and batteries in equipment installed in aircraft.

1.1 Purpose

The purpose of this document is to provide guidance on the use of lithium battery-powered equipment on aircraft. This guidance is provided to the designers and manufacturers of lithium cells and batteries, as well as users within the aviation community.

This document contains both requirements and general guidelines regarding the design, test, application, handling, storage and disposal of lithium cells and batteries. Its further purpose is to provide designers, manufacturers and users of equipment installed in aircraft, with information on the performance characteristics and operating and environmental limitations of lithium cells and batteries powering such equipment. It is the responsibility of equipment designers and manufacturers to insure that the cell or battery operating environmental limits defined in this document will not be exceeded during the intended use of the equipment.